

~~TOP SECRET~~

HEADQUARTERS  
DETACHMENT 10-10, TUSLOG  
APO 289, NEW YORK, NEW YORK

1 May 1957

SUBJECT: Preliminary Analysis of Temperature - Contrail Data

TO: Lieutenant Colonel Robert L. Houghten  
Directorate of Scientific Services  
Headquarters Air Weather Service, MATS  
Andrews Air Force Base  
Washington 25, D.C.

1. A preliminary analysis of the temperature-contrail data collected since 1 January 1957 was made at the end of April using data from eight flights. Data for four additional flights was available but was not used because the temperatures were suspected to be two to eight degrees too cold. There are indications that the temperatures recorded on the eight flights used are slightly erroneous, in the same sense, ie, too cold. This is indicated by the plotted data on the inclosed Skew T, Log P diagram.

2. An attempt was made to extend the 50% probability line upward to 50 MB (67,692 feet). It is supported by fair data to 100 MB (53,173 feet). Above this level the tendency toward temperatures colder than those consistent with the 0% relative humidity line (theoretical) is believed to be due to our apparently erroneous temperature measuring equipment. In fact a negative 60 degree temperature at 100 MB is a more probable point for the 50% probability line. Confidence in the negative 72 degree temperature at 50 MB as a point on the 50% probability line is very low. A more probable temperature is negative 66 degrees.

3. This report is submitted for possible use by the Weather Central (WECEN) and for your information in regard to the suspected errors in the temperatures being recorded and reported. It should be noted that temperatures recorded here are generally colder than the temperatures forecast by WECEN. It is recommended that no further dissemination of this information be made until the temperatures herein have been further checked by your office.

2 Incl

1. Plotted Skew T, Log P Diagram
2. Data sheet

*Joseph E. French*  
JOSEPH E. FRENCH  
Major, USAF  
Weather Officer

\*USAF Declass/Release Instructions On File\*

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T/S	#	100182
Copy	1	of 2
Page	1	of 1